

Muslow July 15

Bar. 5300

6 m. W. of Muslow

At 5600 ft. *Ephedra* & the  
dense leaved yucca came  
in, with *Atriplex* and leafy  
shrub, leaf both all along  
Succaton & Grass  
Sunset Pass 5950 Cedars  
(strongly) reach their lower  
limit ~~at~~ just in pass though a  
few still through & scatter  
along Jacks Canyon.

2 ~~various~~ a peo leaf & a small  
arborescent species come in  
in the pass. Shorelarks, Cowbirds &  
Mockingbird in Sunset Pass

July 16 Camp See Sunset Pass  
(8 miles) bloo ft in Cedars  
with the first few lower Pinons  
*Sialia arctica*

*Sylv. cedrophilus* & ~~two~~ *L. tex. canis* in  
cedars

Cedars in heavy belt at Sheep Camp  
Dove, *Tyrannus vociferans*, *Sayph. hylos*,  
White-th. *Spermoph.*



Journal

1894

Winston A. S.

1894

1894

1894



Alt. 0

Stephen James

E. W. Nelson

Altitude

Winslow

Holbrook

Navajo

Mammoth

Gallup

Frank Kitchum }  
 began work with } 4 or 5 days  
 taken on July 25 } 10 or 12 miles per day

Prof. H. B. Gregory, Yale

Univ. makes trip from  
Keams Canyon to Navajo

Holbrook, Aug. 1st  
Reached this place  
Hudson Co. Bldg. the day  
at dark. Found a few English  
Sparrows. They were  
to be seen. Bought a few  
London. The first of the  
also seen at Holbrook, Aug.  
~~4 or 5 days~~  
in shape of 5 days. The  
peculiar. Could see the  
mounds. Typ. 24. The  
Completely new.

July 2nd. Remained at  
Holbrook. The day with a  
fair wind.

July 3rd. Went to Gallup 7th  
to get eye glasses fixed. To see  
Country. The road is wet  
and the



1909

July 29 Gallup, Alt  
The country covered with  
Juniperus monosperma & Pinus  
edulis, Artemisia tridentata, Chenopodium  
trilobata, Eutrochium, Cercocarpus  
etc. One Tamias seen. In fact from

July 30

Went 50 miles out to Manuelito  
where joined Birdseye & Kelcham  
& we pulled out for Ft. Defiance  
at 7.10 am. Birdseye reports having  
seen English sparrows at  
Alamogordo, Navajo Springs, &  
Manuelito

Our route for the entire 35 miles to  
Ft. Defiance was in a northerly course,  
up about half of the distance  
up a slightly winding Cañada  
with the bottom covered with  
Sarcobatus, about half way up to

about 6500 ft where this gave  
way to Artemisia tridentata  
which became the predominant  
shrub. 6500-7200 ft. & was  
very abundant but rarely more  
than 3 ft. tall. ~~with~~

The Cañada was bordered by high  
abruptly walled <sup>sandstone bluffs</sup> ~~cedars~~ <sup>grown with</sup>  
~~their 500-600 ft high~~ <sup>(monosperma)</sup> ~~cedars~~ <sup>grown with</sup>  
with Cedars & Pinus (edulis)  
& a few Quercus gambelii near  
Manuelito. A few Pinus ponderosa  
grown on cool slopes & close  
to & as low as Manuelito &  
considerable number singly &  
in thin patches here & there among  
the much larger number of Cedars  
& Pinons. About 12 miles from man-  
uelito we reached the ~~top~~ <sup>head</sup> of the draw  
we followed all morning & then



(A few English Sparrows at  
St. Defiance)

we reached a rolling plain  
covered with sage brush &  
occasional Cedar & Pinon at  
an alt. of about 7000 ft. to 7200 ft.;  
then we descended into the  
open valley. Defiance Creek  
near St. Michael Mission &  
then went north up the broad  
open valley of Defiance or Pecosite  
Creek for about 7 miles. On  
the right along the east wall  
of the valley, are several miles  
of <sup>light colored</sup> sandstone cliffs, columns  
and needles reminding me  
of the Garden of the Gods in Colorado  
but of much greater extent  
& of far more picturesque appearance.  
The road from Gallup comes  
directly through a gap in this  
formation.

One Cliff about 150 or 200 ft  
high is ~~table~~ very thin &  
forms a tall knife blade  
with a huge round window  
like hole <sup>over 60 ft wide</sup> right through the  
middle. We passed numerous  
coal outcrops during the day.  
The remarkable scarcity of bird  
& animal life except for  
a few colonies of Prairie Dogs  
was notable. We did not see a  
single rabbit or Coyote.

1 Citellus grammurus.

Birds seen were

Raven several pairs, 1 pair Golden  
Eagle 10 mi. above Manuelito, Pheasants  
couplets a few; Amp. fulvica a few  
Rock Wrens rather common; Carolina  
Doves a few; Sparrow Hawks a few;  
1 Falco mexicanus at St. Defiance;



1 flock River Jays 10m. above  
mammalite.

\* Violet Green

Cliff and Rough Wg. Swallows,  
*Molothrus obscurus*, <sup>1</sup> *Ceryle* - very  
 abundant at Mammoth. *Lyr. verticalis*  
*Sialia arctica* & *S. ai. di*, *Sayornis*  
*sayi*.

Drifance Agency is mainly made  
up of stone buildings along 2 sides  
of a quadrangle at extreme upper  
end of the valley, just where the  
stream a small stream - comes  
out of a box canyon (Berito Canon)  
Just as we reached the place  
we met Sullivan, the chief  
Clerk & Prof. Gates an inspect<sup>r</sup>  
out from Washington to look  
over the reservation. Sullivan  
was at first inclined to be dis-  
contented ~~but~~ & I expressed  
my opinion <sup>of it</sup> to Gates & ~~was~~  
a little later in the eve. Sullivan

Came to our camp at the Agency  
Corral & expressed his regret & was  
proud in offer of assistance which  
I accepted to the extent of a  
letter to their man at the sawmill  
on the mountain (Mr. Casabier)  
We left in the Agency horse  
corral beside our wagon - the  
agent is away at Chinlee  
Alt. of Ft. Piñon 6800 ft. <sup>Smiles from Navajo Co.</sup>

July 31/09

Left Ft. DuRoi at 8 a.m. and  
proceeded ~~2~~ 15 m. in a NW. course  
to the agency, sawmill on the  
road to Chin-lee.

The road led up through the high walled Benito Canon for several miles above the Agency and as along the canon above Manuelito we saw scattered Pinus ponderosa

Smiles from manuscript.



west  
along the <sup>base</sup> of the eastern  
wall of the Canon but all  
trees on top of the mesa forming  
the top of the Canon walls  
as well as those predominating  
in the Canon were Cedars (*monophylla*)  
- *Pinus edulis* with great patches  
of the pink flowered tree-wood  
~~like the one seen~~ along the bottom  
of the Canon. One of the most  
marked ~~features~~ features of the  
Canon is the <sup>natural</sup> strange column  
called Kitterson's Monument  
which is about ~~20~~ 40 ft high.  
I secured a photog. of a Navajo  
hut & a woman weaving a  
blanket in the Canon.  
Our route gradually led  
up the course of Dryden or  
Bonto Creek to open

rolling upland mesas  
from 7000 to 7500 ft alt  
~~on the~~ covered with an abundant  
growth of *Artemisia tridentata*  
& bordered in all directions  
on adjacent high mesas with  
the Cedar & Pinon forest.

Within 2 or 3 miles of the Saw  
Mill the gray sage *tridentata*  
was abruptly replaced by a  
smaller, more flattened & much  
deeper, darker green sage which  
resembled *tridentata* in a general  
way, but must be another species.  
Prairie dog colonies were noted  
all the way up at intervals  
but not a single chipmunk nor  
*Spermophile* was seen though  
we secured a dull gray chip-  
munk in the Agency Corral



at Esplanade

~~Esplanade~~

The Saw mill is located at 4800 ft at the southern border of a large forest of *Pinus ponderosa* with a thin line of *Quercus gambelii* mixed along the border. The pine forest extends about 12 m. n.w. & west from the mill & is the belt which extends south or found at Michal between latter place & Ganado. We reached the mill about 1 P.M. & were given a room in the house occupied by the millman in charge, Mr. W. Casabauer.

Cut out 300000 ft with Navajo labor last year, proceeding July 1, 1904.

The Navajos live scattered all over the reservation mainly in 1 or 2 families & grow a little corn & herd sheep, goats, cattle & horses. They now have gathered into villages. They work cutting lumber, make hay to take in to the agency when they sell it at 30¢ ton. They are very quiet & peaceable. The trouble last winter with By-lille was that the latter wished to pose as a leader & began talking against sending children to the agency school & to talk against the agents. An Indian ~~for~~ policeman was struck by lightning & By-lille claimed he did it by his medicine to show his power. As the result



of this talk a number of disaffected Indians gathered about him & the number kept increasing & they began buying guns & cartridges which showed the danger of the situation if allowed to go on. The agent applied for soldiers & By-lille was runned up & 2 or 3 Indians killed & some others taken away & imprisoned. Some of the latter have been released & returned to the reservation in a completely peaceable frame of mind.

List of birds seen at  
Fort Defiance & in ~~Canyon~~  
Bonito Canyon July 31/09  
*Cor. prop. frontalis*  
*Chondestes*, *Pooecetes*, *Otocoris*  
*Spizella arizonae*, *Salpinctes*  
*Stelgidopteryx*, *Tyr. vociferans*  
*Sialia bairdi*, ~~Ch. Cliff Swallow~~  
*Ammodramus melanoleucus* & *Selasphorus rufus* common in canyon.  
*Dryobates hyloscopus*, *Tachycineta thalassina*, *Corvus sinuatus*  
*Amphisp. bilineata*, *Car. Dove*  
*Otocoris*

The *Juniperus monosperma* predominated halfway up canyon from Defiance and then gave way to *Pinus edulis* as the main tree till on top of the mesa at 9400-7600 ft the Pinon was much more numerous. Wild potatoes are reported to grow in the pine forest on this mountain.



July 31 and Aug 1/09

Birds seen on top of the  
mountain from 7500 to  
7800 ft.

Tyrannus vociferans, Sayornis sayi,  
Contopus richardsoni, Sitta nelsoni  
Sialia bairdi, Oreospiza chlorura  
Spizella arizonae, Perisoreus gambeli  
Chondestes strigatus, Co. po.  
Cassini, Tachycineta thalassina  
Parus septentrionalis, Corvus  
sinuatus, Melanerpes formicivorus.  
Agelaius torquatus, Dendr. auduboni  
(young), Falco s. phalaena, Bubo—  
Buteo borealis, Chordeiles henryi,  
Robin, C. r. dor., Rufus Hum.  
Otocoris—Colaptes cafer  
Geococcyx melano.

At the Saw mill (7800 ft)

We found Thomomys, ~~Peromyscus~~  
Callospermophilus, Eutamias  
Sciurus aberti, Peromyscus  
and Cynomys and the  
Indians told of Wild Cats  
about the head of the canon  
leading into <sup>head of</sup> Canon de Chelly.  
Heavy showers in the afternoon

Aug 2 Monday

Left the Saw mill and traveled  
35 miles ~~SW~~ Northwestly to  
George McAdams trading store  
at Chin Lee. alt. 8600 ft.

It was very cool last night  
& the air was clear & fine when  
we left the mill at 8.30 a.m.  
For about 12 miles we crossed  
an undulating plateau at an  
alt. close to 8000 ft & covered  
with Pinus ponderosa but



nowhere in any heavy  
growth or good timber for  
mill use. About 1/2 m. NW  
of the mill is an old well  
to trough & here the road  
leads down the mt. on the  
wet slope and 2 species  
of cedar, ~~the~~ & the Pinon come  
in. A slender leaved  
yucca is common in  
the pine forest & scattered  
here & there small trees of *Quercus*  
*gambelii* with *Juniperus*  
among the pines.

The 2 Cedars came in at  
about 7800 ft. & on the new slope  
at 7500 ft. were a few firs  
& 2 species of *Cercocarpus*.  
The latter ranging down to  
about 6800 ft.

The large leaved yucca *babacata* was  
rather common in pine forest 7800 ft. &  
with the small leaved sp. ranges down  
west slope to at least 6200 ft.

~~7800 ft. 2 kinds of cedar >  
Firs & 2 sp. *Cercocarpus*  
7600 ft. *Asteria tridentata*  
7300 ft *Crotophytus*  
6800 ft. *Ephedra*  
Dist. *trid.* — at 6800 ft~~  
*Asteria* (dark small  
leaved sp. on top of mt. in  
forest & down to 7800 ft. At 7600  
ft *A. tridentata* came in &  
was left behind at 6800 ft  
at which latter alt *Ephedra*  
came in

Pinons & on cedar, came  
down to about 6300 ft  
where they became scattering  
On banks of arroyos & sandy  
new slopes at from 6000 to 6400 ft  
A small leaved scrub oak came in with  
a Hackberry & Ironwood?



A single *Sciurus aberti* seen  
+ shot in pine forest on few *Eutamias*  
*callosus*. 1 *Citellus grammurus*  
seen at 7800 ft in lower border  
of pine forest among scattered  
*Cedrus* + *Pinus*. 1 black *Pinus* jay  
1 *Cyanocitta stelleri*  
*Junco*, *Coccyz*, *Flicker*, *Pigeon*  
*nuttallii*, *Dryob. hylosa*, *Spiz.*  
*arizonae*, *Dend. auduboni* +  
many *Empidonax* birds were seen  
in pine forest. At about 6000 ft  
in pines a pair of *Dend. griseica*  
seen. These were shot + proved to be  
in the juv. plumage.

On the way down the west slope we  
saw *Baeolophus inornatus* in  
upper part of *Pinus* belt with  
*Parus septentrionalis*. At 6400  
ft. A yg. *Myiarchus cinerascens*  
was shot. It had no yellowish

shade + the dusky markings on  
outer tail feathers was like in  
*nuttallii*. The western slope  
of the mts to Chin Lee Valley  
is in a series of small benches  
+ is more abrupt than that  
from Ft. Dryden. An arborescent  
Cactus 12-24 in. high was scattered  
down the slope from about 6500 ft.  
down to the valley. The rounded bush  
Cactus was also seen at about  
6500 ft in *Pinus* belt + the pear  
leaved *Opuntia* ~~to~~ with numerous  
long whitish spines was common  
from about 7000 ft to Chin Lee.  
Nowhere on this road except at  
the old well ~~where there was but little~~  
near lower edge of pines, This is  
merely a shallow dug out seep



Chin Lee ~~July~~ Aug. 3  
Remained here all day  
to see what small ruins  
the valley affords. As we  
came down the final slopes  
last night the valley could be  
seen for miles N. & S. & 8 or 10 miles  
across. It is without permanent  
running water though recent  
rains left pools here & there along the  
bottom. ~~At the mouth of~~ trading  
store is a spot ~~where~~ directly at  
the mouth of Canon de Chelly out  
of which a small stream is  
flowing now. Half a mile to the ~~west~~  
northwest is located a Catholic  
mission where 3 Padres are located.  
Chin Lee valley has several series  
of pale yellow sand dunes  
and the broad mouth of Canon

de Chelly is a part of the same.  
Most of the rest of the valley near  
the trading store is extremely barren  
& with <sup>low</sup> rocky & clayey hills forming  
a "bad lands" area.  
Off to the west is the flat topped  
Black Mountain mesa  
which is from 7 to 8000 ft on  
top & the Navajo Indians who  
are familiar with it say that along  
practically the entire highest part of the  
Black Mt. from N. to S. is a forest  
of *Pinus ponderosa* with trees smaller  
& more scrubby than on the Sawmill  
mountain we just crossed. The  
Indians say that a few scattered  
yellow pines also grow on top of the  
mesa south of Black Mt. but most  
of the trees there are Cedar & Juniper.  
This information shows that the tops



Black Mt. is formation like  
top of sandmill Mt. & all the rest  
of the country (below 7400 to 7600  
ft alt) is Upper Sonoran  
Birdseye caught *Thomomys*  
*Peromyscus* & *Chaetodipus* last  
night.

Aug. 4 Canyon de Chelly.  
We left Chin Lee in the  
morning & went about 7 miles  
up Canyon de Chelly & camped  
in front of the "white house" cliff  
dweller's ruins. The canyon  
is sandy bottomed & walled  
& from 100 to 300 yds wide with  
finely varied sandstone walls  
rising from 100 ft near mouth  
to several hundred feet (200-500)  
further up. The canyon is so  
steeply walled in that it is

accessible from outside at  
only a few points. Leading up  
the Canyon del Muerto were  
wagon tracks of a party made  
up of Mr Eastman of the Kodak  
Co., Dr. W. Jewkes & Mr. Menden  
the Pecten & his wife.

The White house ruin has one  
house the farther back in the cliff  
which appears to have been  
whitewashed & is suspiciously  
like <sup>some</sup> modern work. The niche  
in which this cliff runs & on  
built is about 50 ft. from the bottom  
of canyon & another set of similarly  
built houses are located against  
the cliff ~~at the~~ immediately under the  
cliff rim. The ~~sticks~~ & straw used  
in the roofs of these last ruins are still  
in well preserved condition & many  
small corn cobs.



A few other cliff ruins  
were seen along the canyon  
but fewer than I expected.  
The Navajos have summer  
hogans at many little  
flats along the sides of the  
canyon when they have small  
fenced enclosures for hay,  
corn & a few peach trees.  
Some small flocks of goats  
were also seen.

About 8 miles above the mouth  
the canyon is strikingly picturesque.  
So far as bird & plant life  
is concerned it was very much  
poorer than I expected.

1 Rock Canyon wren, 1 Parula about  
20 Turkey buzzards, and several  
*Amphisp. bilineata*. One nest of the  
latter, containing small eggs, was

found about 8 ft. from the ground  
~~on~~ the outer end of a branch of  
a huckleberry tree. The nest was  
a flimsily made structure of grass  
built on top of <sup>the base of</sup> several small branches,  
at junction with main branch.

The old bird showed much anxiety  
over our presence while we were  
camped under her home.

The most abundant shrub in  
canyon is *Sarcobatus* with *Atriplex*  
*confertifolia* next & many small  
pear-leaved cactus with long white  
spines. Some of the common  
cottonwoods like those on the  
Little Colorado at Huclo, some  
huckleberry trees 15-25 ft. still  
fewer walnuts, some other trees  
& bushes.

Birds were put out a good sitting of



traps & caught *Perodipus*,  
*Neotoma* (red tailed), the mountain  
Thomomys, 2 sp. of *Peromyscus*,  
a alkylpainted *Perognathus*, *Reithro-*  
*dontomys* I took a 2 *Spizella* *g. v. c.*  
I saw tracks of *Urocyon*, *Bassaricyon*,  
and 1 sp. of *Lynx baileyi*.

Aug. 5 Returned to Chin  
Lee in the morning and  
at 3:15 P.M. we left for Juana  
taking a south-westerly course  
across the alkali flat forming  
the bottom of the valley for about 5 m.  
then up on a fine mesa country  
at an altitude of about 6300 ft.  
On the way up the side of the  
mesa were many of the small  
leaved *Cercocarpus* & on the  
mesa itself 2 species of *Ephedra*

(*Sarcobatus* & *Atriplex confertifolia*,  
abundant on the Chin Lee valley  
bottom)

*Euternozia*, *Atriplex canescens*  
the white spined pear leaved *Opuntia*  
and the small species of  
*Artemisia* with flat growth & small  
tridentate leaves such as were abundant  
from Winslow to Chaco Pass which  
is not *A. tridentata* though having  
the same gray color. The leaves are  
smaller & it does not have a strong  
well marked trunk like *tridentata*  
but grows in little mound like  
patches close to the ground except  
for the flower stems. The top  
of the mesa is sandy and  
the holes & mounds of *Dipodomys*  
*spectabilis* were abundant,  
a few holes of a smaller species  
probably *Perodipus* were seen.  
We camped about 12 miles  
S.W. of Chin Lee at 4:45 P.M.



+ put up the tent just in  
time to get shelter from a  
heavy shower. This was followed  
by nearly continuous rain  
over half the night. The mesa  
is a broad undulating  
plain extending from the  
border of Chin Lee Valley  
to the high table mountain  
range to the west & has the  
best growth of grass we have  
seen on the trip. Some Navajo  
sheep (bands) & quite a  
number of cattle & horses  
were grazing to the S. West  
from Camp. 2 large  
deep water holes about  
a mile west of the road near  
our camp were full  
of water & served the stock in  
Saw.

The Navajos were camped  
near the water with their sheep.

Aug. 6 From Camp on mesa  
about 12 m. S. W. Chin Lee to  
Ganado a distance of about  
23 miles ~~in a~~ southeasterly. It rained  
hard last night and the roads  
were very clayey so that for  
the first 2/3 of the way we had  
hard pulling across fine grazing  
country in the form of a  
continuation of the same undu-  
lating plain we camped on. In  
the late P.M. we struck the  
road from Ganado to Kaibab  
Canyon & turned eastward ~~into~~  
through a ~~wide~~ broad pass into  
another valley & in about 5 miles  
reached J. L. Habbell's headquarters



trading station Ganado.

He has a large store, warehouse & dwelling here & lives in patriarchal style with some of his married & unmarried children & such guests as chance along. We ~~found the family~~ <sup>found the family</sup> at a large table at supper & were at once welcomed heartily & taken in to supper. We found here Prof H. S. Gonyer, wife of Yale (he has the Chair of Geol. formerly occupied by Prof Dana). He is out on a reconnaissance for water supply for irrigating purposes for the Indians & the Geology.

The plain we traversed during the morning was exactly like that of the strata *Atriplex canescens* & *Gutierrezia* Every where & *Sarcobatus* in all of the lower places the white spined cactus & small sage like dwarfed *tridentata* <sup>also shrubby leaved *Succa*.</sup> Near the pass leading to Ganado Valley were miles of country in which *Gutierrezia* was the almost the only shrub or herb & covered the ground so densely that the entire landscape was colored the vivid green of this plant. The high mesas with abrupt escarpments several hundred ft. high & flat. The tops of all high mesas covered with cedar & piñon & the broad valleys all open country.



Aug. 7. Left Ganado  
at 10.00 a.m. & travelled in  
a westerly course toward  
Kaans Canyon for 24 miles.  
Our course led through open  
valleys & across mesas  
covered with Cedar & Pinon.  
The valley at Ganado is  
an open plain like Chin  
Lee valley with Cedars on  
the bordering mesas. ~~At~~  
About 8 m. west of Ganado  
we found a group of about  
100 yellow pines on the East  
border of a mesa about  
50 ft high and ~~the~~ surrounded  
by pinon & cedar. ~~The road~~  
~~left~~ from near this place  
we had a good view across a  
valley to the south border of the

Sa-la-Kai mesa & could  
plainly see a patch of pines  
<sup>near the middle</sup> a quarter of a mile long or  
so with a few others scattered  
along to the west. Our route  
after leaving the pines led  
for several miles up and over  
an undulating mesa with  
~~borders~~ broad areas miles  
in extent of a strong growth of  
Athanasia tridentata. This  
mesa was over 7000 ft high.  
The Athanasia tridentata rarely  
grows to lower border of Cedars  
but comes in 500 ft or more  
above. We found a few new shrubs  
or small trees on North slope  
of the Ka Canyon where we camped  
just before we came to Eagle Bay.  
As usual we found an abundance



of *Chrysolophus amoenus* & 2 species  
of *Sturnella* all along our  
trip with ~~the~~ *Yucca baccata*  
common ~~along~~ <sup>with</sup> the desert sage.  
Heavy rains before we left us  
we can get used water from  
a small shower. Many  
Catalpa trees along the last  
thick cover trip.

Says *Hylocichla* & *Tachycineta*  
*Falco phalaena*, *Parus*, *Sparz*,  
~~and~~ *Chondestes*  
(Can't get out a lot English)  
sparrows at Garabito  
*Porreates*, *Pinon* jays,  
Woodhouse Jay, Turkey buzzard  
(at Garabito), 1 Red tail hawk.  
~~Aug. 8~~ Made about  
26 miles reached the  
trading store of J. H. Hubbard &

at the old Keams place  
at 7 PM. We took the road  
leading into head of ~~the~~ Keams  
Canyon & when near old Govt  
School 2 1/2 miles above store  
found it washed out that  
to recross to east side & come  
down a new road. Road  
very bad & sandy most of  
PM especially in canyon.  
Says flyc. *Tachycineta*, *Stelgid*,  
*opteryx*, *Parus*, Red-tails, *Falco ph-*  
*alana*, *Parus* & Woodhouse Jay  
1 family of *Oroscoptes montanus*  
(first we have seen) many  
~~small~~ *Otocoris* in small  
parties at intervals every day from  
Chin Lee Valley. At 7 PM  
today, <sup>straggling</sup> a party of 10 *Chondestes* *henryi*  
were seen flying steadily southward



at an elevation of about 30 yd.  
They were evidently migrating.  
Birdseye shot a spec. of Siro  
cassini in the pinyons.

We were hospitably welcomed  
by Hubbell and found stopping  
with him Mr. Don P. Johnston  
Land Examiner, Forest Service,  
who has just been on a cross  
country journey from here to  
Moonlight Utah across the  
Black Mountain Country.

He found Pinus ponderosa in  
patches on north slope of Canyon  
above 7000 ft on the south side  
of Black Mt. where in numerous  
places he visited; none were  
more than <sup>1/2</sup> mile long <sup>in from S</sup>  
<sup>approaching the edge of canyon</sup>  
The tops of the Black Mt. mesas  
he reports as being covered

with cedar & pinyon forest but  
at the head of Blue Canyon  
the Indians told him that  
some quaking aspens were  
growing & he noted Douglas?  
fir <sup>on the north slope just below the rim</sup> growing along the north  
edge of highest part of the mesa  
Nowhere along the top of this  
Mt. was there continuous yellow  
pine or fir forest but the level  
top of the mesa was given with cedars  
(monosperma) and Pinyons.

Just before we reached the top of  
the Canyon opposite Hubbell's  
store the foot. Schoofs a new  
composite  
shrub with small silky bunches of  
whitish seed fluff (spec. saved) came in  
abundantly among Alnus canadensis  
& Entomogon, Pinyons, cedars



Aug. 9. Remained at Keams  
Canyon to let the team rest.  
Spent the time by getting infor-  
mation about the country from  
Mr. Johnston, getting off mail  
& other odd jobs.

The country & region which has  
taken place in Keams Canyon  
goes high up down to near  
its mouth this year is unusual &  
is proving a destruction to roads  
down the canyon. The small  
areas of flat land in the canyon.

All the way from Ganado to  
Keams Canyon we saw  
scattered earth covered, round  
topped, Navajo hogans which  
are for winter use & many brush  
shelters of similar shape  
for summer, the latter sometimes

along side the other. These earth  
covered hogans are commonly  
excavated a little & are much like  
our Eskimo but in a general way.  
Many *Eutamias* *hopeensis* &  
*Citellus grammurus* seen by  
Birdseye on broken rock walls of  
canyon. Also numerous *Myiarchus*  
*cinerascens* about flowers in the  
bottom. ~~*Spilogale* caught in~~  
~~*traps*~~

Aug. 10 Left Keams  
Canyon - made 12 miles in  
a westerly course to the Moki  
pueblos of Walpi. We went  
about 6 m. down the canyon to  
the mouth & then across open  
plain to east base of the mesa  
on which the town is built &  
camped in the yard of the



school teacher, Dr. W. Ireland  
The open plain we cross  
is overgrown with *Gutierrezia*  
*trifida* ~~*confertifolia*~~ *confertifolia*  
but no *Yucca* nor *Larrea*  
*tridentata*.

Mr. Bridgman went on top of  
the mesa & looked over the  
village for a couple of hours.  
It is a remarkably flat & open  
spot but modern cook stoves  
in the houses & window sashes  
in houses are spoiling the  
place as an example of primitive  
house making.

The Snake Dance takes place  
here about the 17th inst. & many  
women can be seen at work smearing  
mud over worn places of the  
the houses to make them pre-

sentable for the festival when  
many strangers appear. We  
found the artist Mr. Subank  
on the mesa painting a picture  
of the Snake Dance.

Aug. 11 From Walpi m.  
18 m. to Oraibi. <sup>*Archibuteo ferrugineus*</sup>  
<sup>*Junco oreganus*</sup>  
The very large old *Neotoma arizonae*  
was caught in the small garden back  
of the house also a spec. of *Perom.*  
(W. ft.) & Dr. Ireland said that  
both had been doing a lot of damage.  
The Indians also reported that *Perom.*  
digs up their seed & destroys  
plants & does much damage.  
The plain ~~from~~ crossed today is  
covered with *Atriplex canescens* except  
in ~~clayey~~ clayey places in bottom  
when it is replaced by *confertifolia*  
*Gutierrezia* & the shrubs of which



specimens were saved with  
*Ephedra viridis* & the small  
sage resembling *tridentata* (like  
the new *Willow*) ~~On top of~~

Aug. 12 Oraibi

At Oraibi we stopped at  
the Govt school & one of the  
teachers (Miss Stanley) permitted  
us to use her school room to work  
& sleep in, gave us water & otherwise  
was very kind. The head teacher  
here Mr. Joenell returned from  
Keams Canyon in the eve & offered  
his services.

Aug 12 Oraibi by road about  
18 miles westward toward Tuba  
Mr. Joenell was kind enough  
to put on his team & haul our  
wagons to the top of the mesa  
at Oraibi. We crossed

the point of the mesa & down the  
other side, across a valley plain  
& to reach another mesa point &  
across another valley (Jenebito  
wash) & then up on a high mesa  
overgrown with cedar. To  
the top of this mesa the road was  
~~about~~ northward for about 12 miles &  
then went southward about 6 mi. to  
our camp. We found enough  
water <sup>wagon road in</sup> in puddles from a recent  
shower to water horses & fill  
canteens & serve for supper &  
breakfast tomorrow.

On low plains & about ends of  
mesas we traversed the  
most characteristic plants were  
*Atriplex canescens* & *confertifolia*  
*Sarcobatus* (Jenebito wash)  
*Ephedra viridis*  
*Eutimnia* & some *Gramma* grass



~~On top~~

The top of Oraibi mesa is  
covered by cedars for several  
miles but they come in thin  
~~now~~ they are shorter on only  
middle mesa also.

On top & on slopes of mesa  
with the Cedars were many  
slender leaved yuccas, small  
leaved Cercocarpus, Atriplex  
canescens, & Gutierrezia  
& Ephedra.

Aug. 13 Dry Camp on mesa 18 m.  
west of Oraibi - NW to Tuba  
30 m.

~~On~~ Had to take horses back  
2 miles to a spring to drink &  
to fill canteen for road today  
Left camp at 8:45 2 new  
plants in head of canyon near

Camp saved. Same plants  
on this mesa noted yesterday  
Our road went south a little  
byrd camp then back to NW. past  
some Navajo hogans & down to  
a lower level out of the cedars.  
A spring a little to right of road  
as we went down N. slope of mesa  
main plants on lower  
tender mesas over which we  
traveled for hours are Atriplex  
canescens, Ephedra, Gutierrezia  
Yucca glauca & yuccas.  
At 16 miles from Tuba we  
passed a frame house at  
head of a wonderful canyon in  
the mesa leading into  
Mormon's Wash. It was  
of the good Canyon formation  
about 500-800 ft deep &



Super. flycatcher, pale  
gray, bluish & deep red.  
Quail, quail, quail, out  
to miles 9. 17 Suba & we  
Camped by a water hole  
in middle of a low sand  
slope leading down to  
mesquite marsh at the  
Hopi Pueblo.

Buteo borealis, Bubo virginianus,  
Otocoris, Mela, black  
Chondestes, Catantops,  
Buteo calurus, Falco sparverius,  
Carpodacus, etc. were the  
birds noted.

From Suba  
about 5 miles west to  
Suba this morning when  
we were hospitably wel-  
comed by the Supt. of the

Indian School Mr.  
James the chief clerk  
Mr. Kraus. Found  
much mail & spent  
the day on correspondence  
etc.

Aug. 15 Remained at  
Suba. Sent our driver  
Frank Kitchum back to  
Winslow & it was a good  
ride as he developed  
into a disagreeable man  
to have in camp & his  
team is used up. - He beats  
them too much. At work  
on reports & correspondence  
Birdseye has out his  
traps for Coyotes etc.

Aug. 16 Suba.



Finished my account  
for July & worked on com-  
pounding & getting notes  
in shape. Birding  
on 1st & 2nd of August last  
night

Deciding a walk to the  
Carrizo & north side  
Sagones Canyon  
by the river valley

*verticalis*  
*Agave* *Wolfeana*  
*Trigonostemon*  
*Silene* *triflora*  
*Stellaria* *media*  
*Lamium* *maculatum*  
*Melissa* *lanceolata*  
*Zinnia* *lanceolata*  
*Astragalus* *pectinatus*  
*Chondrostes*  
*Poa* *arvensis*

*Spiz* *breweri*  
*Carpodacus* *frontalis*  
*Chondestes* *hemus*  
*Cathartes*  
*Falco* *phalaena*  
a *Buteo* *swainsoni* (dark  
spec.) perched for a short  
time in afternoon on one of the  
chimneys on one of the large houses.  
*Salpinctes*  
*Cathartes*  
*Amphispiza* *bilineata*

Aug 17 - Tuba (Sunday)

" 18 "

" 19 "

" 20 Remained at

Tuba all the week writing  
reports & making observations  
while B. Trapped successfully  
for *Crotophaga* which are coming  
into the orchards feeding on



fallen apples & pears. Although  
traps were set profusely  
for mice in the traps. Cows  
all about 2-3 miles away  
at the same time. John  
only one mouse. Person, refused  
was caught in a work house.  
On Wed. morning <sup>the 18th</sup> we sent  
by mail most of the small  
specimens collected since  
leaving T. & below & I sent my  
July account with 34  
vouchers. On the morning  
of the 19th we learned  
that the carrier with yesterday's  
mail got into a quicksand in  
the Little Colorado R. & lost  
the sack containing the mail  
including ours.

Stephen Janus  
Supt. at Tuba

On the 20th we prepared to leave  
for Lerdo as Mr. Janus will  
not be here for some days. Mrs.  
Janus with Mrs. Prof. Gregory &  
Gale & other ladies came back  
from Snake Dance on 19th  
The dance was on 7.

Plants about Tuba <sup>mainly</sup> were  
*Sarcobatus*

*Atriplex canescens* & *confertifolia*

*Rhus trilobata*

*Gutierrezia euthamiae*

*Chrysothamnus graveolens*

*Ephedra viridis*

*Lycium pallidum*

Brown blossomed thorny shrub

*Opuntia polyacantha*



Aug 21 Left Tuba  
at 5:30 with 2 good mules  
saddled and to the Indian  
school at Tuba. On our way  
we saw a good many  
Indian mules. We then  
went around the point  
where the Tuba River  
flows into the Colorado  
River. We then rode about  
3 hours to a good place  
where we stopped at a  
small stream 2 miles beyond  
for lunch. We then travelled  
about 18 miles to a good  
camp. The Tuba River  
is a good stream and  
is the only one of the  
Tuba River. We then  
went to a good place  
at a well in a side canyon.

at the extreme head of  
Tuba Cliffs wash when  
the road passes up through low  
strongly contoured clay bad land  
hills. *Amphispiza bilineata*  
*Chondestes*, *Lanius*, *Spizella*  
*townsendi* - *Corvus* <sup>*sinuatus*</sup> ~~*sinuatus*~~, *Pooecetes*  
Willow spring is in the west base  
of the great escarpment of Tuba Cliffs  
which extend to the Colorado at  
Lone Ferry. ~~There~~ they have an  
abrupt escarpment of from 1 to 2000  
ft for many miles to front Vermilion  
Cliffs on N side of Colorado  
for 15 miles near N end.  
The Cedar began to come in at  
5800 ft & at 6000 ft we were  
in the Cedar belt which  
crosses Cedar ridge.



Aug. 22. Left camp at about  
 6:30 am & crossed Cedar ridge. We  
 passed the divide at once after, starting  
 & the road lead through a long narrow  
 timber valley lying at base of Echo Cliffs  
 about a mile wide & 15 or more long.  
 After this the ~~road~~ road continued down  
 always near the cliff & to the NW descended  
 up to Indian cliff. We left Cedar &  
 pines behind at about 5000 ft. &  
 vegetation became more more  
 scarce & stunted as we descended  
 toward the river. ~~At about~~  
 Below 5000 ft. new species began  
 to come in. At ~~4700~~ <sup>4700</sup> ft.  
 a species of *Ligustrum* & *Arctostaphylos*  
 came in & was common. From 4500  
 to 4000. ~~with it~~

Plants on Cedar Ridge  
~~At 5000 ft. common~~  
~~Cercocarpus~~ ~~small leaf~~  
~~in common~~  
~~Gutierrezia~~ 2 kinds  
 a gray fine leaved sp. a little like  
*Artemisia*, same sp. from near Manuelito  
~~in common~~ ~~at 4700 ft.~~  
 on N. side of top of ridge  
 a grass  
 a tall small leaved sp. *Artemisia*  
*Thurbergia* *umbellata*  
*Yucca* *elata*  
 a *Quercus*  
 from road toward there, where  
 at about 4800 ft. the country  
 became more open & the  
 vegetation more sparse.  
 At 4700 ft. *Cercocarpus* *umbellata* very common  
 & a new very dark leaved yucca came  
 in together & both were common

This stopped at about 4500 ft.



5000

From 5000 ft. up to 5500 ft. Opuntia  
prostrata, etc. The river  
bank is high. The soil is  
coarse. The large  
Opuntia is very common. The  
fruit is gone. prostrata species

Opuntia prostrata is common  
in proper soil conditions  
also. I saw a few  
get them in the river

Birds very scarce on 22<sup>nd</sup>  
Spizella breweri, Arizona  
Chondestes, Pooecetes  
Amphisp. bilineatus, Cyanocephalus

Lantern, Salpinctes  
From 4500 ft to the river at  
the ferry (about 3300 ft. there  
is considerable change in vegetation  
2 cactuses a long spined  
Opuntia per leaf & 2 spines  
per leaf. Opuntia common  
on S. side from the ferry  
up to about 4500 ft.

~~We finally~~ We stopped &  
waited at Navajo Springs then  
on down a bare & bare reddish  
clay slope almost bare of plants  
to the dry way along cliff for  
a mile up the river bank to a  
sand flat a mile above the  
ferry ranch. It was nearly  
dark & we made camp for the  
night after a hard days drive  
about 45 miles. The canyon



is much warmer than  
the higher country we have just  
come from.

The big road is in dangerous shape  
with a place where it is sloughing  
away endangering wagons.

Aug. 23. Lees Ferry

The ferry man Mr. James S. Emmett  
came up to the ferry with a wagon  
+ 3 girls from 12-18 years old  
to help work it. The river  
is at flood, running logs &  
much trash & it was sometime  
before the ferry was worked over  
the girls showing all the skill  
& efficiency of so many boys.  
We left our team on the S.  
side & took the outfit across  
down to the Emmett Ranch  
at mouth of Paria Creek where

Hackberry - 2 trees near ranch  
we arranged to stay. Got spec's  
of the plants on the south side  
of the river. The small leaved  
Cercocarpus, Atriplex canescens  
A. confertifolia, Gutierrezia euthamiae  
Ephedra viridis, The bunch cactus  
(red flower) <sup>and</sup> Chrysothamnus graveolens  
followed down to the river bank  
on S. side. The 2 Opuntias &  
other specimens represent the  
new forms which came in here.  
Emmett ranch is a fine place  
to stop. They have water melons,  
musk melons, cantaloupes, 2 kinds  
of grapes, Apples & peaches ripe  
now with corn & tomatoes. Plenty  
sprinkles & butter. In addition to  
the orchard (much neglected)  
there is considerable alfalfa on  
which 4-5 crops are cut.



With exception of the irrigated land  
 the country is the same as at  
 the Indian reservation. The  
 entire vegetation made up of  
 small Leptocarpus examples  
 of the most abundant species.  
Altriplex confertifolia, Sphaeralcea vir-  
idis are the most common  
 species. The vegetation on  
 Rock with the Navajo Indian  
 (Alto) the same. I went with  
 the team ~~mount~~ went back to  
 the Navajo Spring to camp for  
 a while. I went across river  
 to trap.

Arranged with young William Ewart  
 to go with us to the Buckskin Mts.  
 with wagon & 2 horses @ 4.00 a  
 day, expenses. Also saddle  
 horse for birding @ 2.50 a day.

Aug 24 & 25 Lees Ferry.

Aug. 24 Lees Ferry.  
 An early hunt for birds today  
 resulted in finding Falco sparverius  
Chondestes strigatus Empidonax  
Spiz. breweri Dend. aestiva  
Corpod. frontalis Zenaidura  
Opornis tolmiei Stelgidopteryx <sup>common</sup>  
Otocoris confinis Scolecophagus castaneus  
Habia melanocephala

Aug 25 Found Vireo cassinii & V. swainsoni  
Dendroica aestiva 7, 20 - 30 - 40  
 Also 2 sp. Empidonax, Opornis  
tolmiei abundant, Geothlypis  
 abundant, Chondestes a few.  
Sayornis saya 1, Polioptila 1,  
Catherpes a. sept. 1, Parus anona  
Corpodacus reported doing injury  
 to ripening tomatoes on 4 to 5  
 seen on ripening Chenille  
Spizella took peaches



The small leaved Cercocarpus  
common in gulches along north bank  
of river. The Datura (Jimson Weed)  
Common at ranch.

Fruit

Later than mid - 8 p.m.

Exhibit 10 - mid of Oct.

Crop at ranch & Ferry

about 1000 lbs Potatoes

1000 lbs

Reaches ranch, that

both of garden & orchard

Apples, about 1000

percent of crop

Missouri & Oregon

Common to 1000 lbs

There are about 25 acres in

alfalfa & room for more with

about 30 acres of orchard & vineyard

Aug 25 Lees Ferry.

One bunch of Vignaga cactus  
photographed & also one of the  
spiny pear leaved bunches

The Vignaga said to have red  
or purplish red flowers as does  
the long-thorned pear leaved sp.

The spineless pear leaved sp.  
said to have pink flowers.

The round bunch cactus ~~like~~  
which is also common in Cedar  
Belt has dark red flowers here  
& completes the 4 species found  
close to Lees Ferry ranch.

Emmett reports having killed  
2 Coons here in several years  
residence; a few beaver also seen.  
(He had a skin of a yg. one). A civet  
cat came into the attic of the house  
in winter & while mousing about  
fell upon the bed of a school teacher



who was much frightened &  
the offender was finally killed.  
Emmett says that there is no  
outlet for stock up Paria  
Canyon way, the only way of getting  
out on N. side of river being by way  
of Kanab or the Buckskin mts.

He says a fence 15 m. long  
would fence in the entire  
Buckskin plateau & country  
East to Lees Ferry & Paria Canyon.  
This fence would begin at  
the NW end of Vermilion Cliffs &  
cross House Rock Valley near  
House Rock Spring & thence south-  
westward to head of box canyon on  
Snake Creek.

By saving the grazing above  
the Ferry ranch Emmett pastures  
about 100 head of cattle & horses

there in winter. On top of Paria  
Plateau a cattle man has  
water in a ~~natural~~ natural  
drainage basin so he runs about  
500 head of stock there. A Cattle  
Co. in which it is reported that  
a Calif. Senator is interested  
has a fence across the narrow part  
of House Rock Valley E. & W. to hold  
stock from drifting northward.  
At present there is no winter range  
included in the Kaibab Plateau  
game preserve & last winter  
when heavy snow fell there  
the deer all left the Preserve  
for lower & warmer country &  
were then killed in large numbers  
by people from the Kanab section.  
By adding the country to Lees  
Ferry game would have a good  
winter range & be really



protected - which is an  
impossibility now.

The Calif. cattle Co. are now  
running stock on the Preserve  
& are said to be opposing any  
extension of the game Preserve  
for winter range as they are  
now occupying a good part of  
it about House Rock Valley.

---

A winter pelage Coyote skin  
at Lees Ferry is iron gray  
on back like a gray wolf  
but upper sides of nose  
& front of forelegs & feet are pale  
rusty reddish showing the  
Coyote

Last year 100,000 sheep were  
crossed at Lees Ferry at 2 1/2¢  
each & 5,000 head in 3 days  
before we reached there.

Ematt says the canyon above  
the ferry is very narrow & cold in  
winter & much ice comes down  
& sometimes freezes solid  
across at the ferry so that wagons  
have been taken over while he  
has driven a goat herd over safely  
on the ice.



Reached L. Ferry morning of Aug 23  
June 23<sup>d</sup> - track. 27<sup>th</sup> = 4 days

Aug 26 L. Ferry.

Emmett shot a y. Cooper's Hawk  
this morning.

Mammals at L. Ferry

*Peromyscus manicillatus* —

2 sp. *Peromyscus* on S. side

+ 2 " " on North side

*Neotoma arizonae* on S. side +

a mud tailed species on N. side.

Coyote

Badger

*Spilogale*

*Procyon*

*Urocyon*

Beaver

*Bassaris*

Emmett has been at Ferry 12  
years + at Kanab + in this  
country much longer + knows  
of black bear being taken twice

in the Buckskin mts of Plateau  
one of them was in 1908. No  
silver tips were known there.  
Nor does he know of any elk ever having  
been there.

L. Ferry was an old Navajo  
crossing by which they ran  
through stolen stock from Utah.  
They used to cross in winter on  
ice + sometimes with rafts + skis.  
The Mormons built a rectangular  
stone house half a mile above  
the ranch where 8 men were kept  
as guards in winter to prevent  
Navajos using this crossing.  
This stopped some of the raids.  
Of one party of 14 Navajos on a  
horse stealing trip 13 were killed  
south of Kanab by the Mormons.  
The crossing at L. Ferry was



discouraged by following Navajo trails. The Mormon Church for years has had an interest in this project to help Mormons who were the main users of it for a long time according to Emmett.

Aug 27 Soap Creek 15 m. SW. of Lees Ferry (alt. about 4800 ft) Left Emmett's ranch after 10 a.m. and took the trail sweetly along the front of Vermilion Cliffs on the way to Buckskin Mts (Kaibab Plateau). Passed Badger Creek, a trickling stream 10 m. out & 15 m. out came to a similar stream called Soap Creek on account of its alkaline water. The Vermilion Cliffs are fine both in color & the variety

of sculptured butresses along their entire length. From their bases a ~~big~~ mesa stands out about 500 ft. higher than the bench followed by road & has a fringe of huge boulders about its base along which the road travelled. The bases of cliffs &

mesas are very barren but enough green stuff grows on the ~~hill~~ cliff slopes to tinge them with green on the gentler slopes. On the mesa over which the road led the vegetation was sparse & small. *Atriplex confertifolia* was the most abundant species & often almost the only one. Scattered *Gutierrezia euthamiae*, the long spined *Opuntia*, *Ephedra viridis*? The small flat plant with hoarfrost like leaves very abundant. The



slender leaved yucca with  
leaves 12-18 in long & stems  
2 to 4 or 5 plants in a bunch  
& occasional short stem. Also  
the straggly low shrub with red bark  
& short mesquite-like leaves.

The plants named above were  
all along the route but at  
about 3700-4000 ft. the inflated  
stemmed plant, the green stemmed  
species without leaves & minute flowers  
& the green stemmed species with  
small daisy-like flowers began  
to drop out. Along the bank of the  
Colorado below ranch we saw  
many Lycium bushes with small leaves  
& small blue flowers. ~~At about~~  
In the gulches we crossed were  
*Chrysothamnus* & *Atriplex canescens*  
with small leaved *Cercocarpus*

in draws at 4500 ft. It  
appears that the lower Sonoran  
at Lees Ferry is below 4000 ft  
even on the south front of  
Vermilion Cliffs but various  
upper & lower Sonoran species intermingle  
along the zone from the Ferry to  
5000 feet. The arrowwood is  
plentiful along the river to above the  
ranch.

The green stemmed Composite  
with small yellow flower it looks like a  
slender stemmed light green species  
was noted on slopes & favorable soil  
on the mesa all along today's  
route.

Cedars & Pinons were common  
on Paria Plateau to the edge of  
top of Vermilion Cliffs we saw  
above Badger Creek & also above



Soap Creek tall solitary trees that  
appear to be yellow pines. Emmett  
says there are a few yellow pines on  
this plateau but nowhere enough  
to be called a forest - merely a few  
scattered trees among the general  
forest of Cedar & Pinon.

Aug 28 Jacobs Pool -  
15 m. from Soap Creek. Alt.  
about 5500 ft.

Left camp rather late &  
pulled around the southern point  
of the mountain cliffs.

At 5000 ft. elevation we came  
<sup>a greater abundance of</sup>  
into typ. Upper Sonoran desert  
vegetation for these open plains  
of the Colorado. The plains are  
sandy & have the following  
plants at 5000 ft.

*Atriplex canescens* abundant  
*Yucca* (shrub leaved) "  
*Ephedra viridis* "  
*Eutymia tuberosa* common  
Brown flowered small shrub "  
The *Ephedra*-like composite with  
yellow flowers was all along  
down to the Ferry & thence up  
to at least 5500 ft.

The frost-leaved herb, inflated  
stem herb & the leafless green  
white bell flowered herb reached  
their extreme upper limit  
at about 5000 ft.  
Also the leafless green stemmed  
species with small daisy-like flowers.



In the forenoon the thimble on right  
hind axle broke & we were delayed  
several hours till old man Emmett  
came along & ingeniously bored  
a hole in the tire rim & along top of  
wooden cone of axle & by means of  
wire.

We reached Jacobs Pool just as storm  
began on all sides.

### Aug. 29 Jacobs Pool

Remained here all day. Heavy  
showers <sup>night or</sup> all day on every side & especially  
over the Buckskin Mts. a few miles west.  
Clouds low over mts. & along ~~the~~ Verm-  
ilion Cliffs. In P.M. a heavy downpour  
sent the washes on both sides of us into boom-  
ing torrents of red mud & the slopes were  
streaming with red mud showing a tremendous  
amount of erosion for the short time. The  
sandy, slightly clayey soil dissolves like

sugar in flowing water. On our way  
from Soap Creek to Jacobs Pools there  
was a marked increase in amount of  
vegetation in its size showing the  
effect of increased rainfall.

The same vegetation listed as at  
5000 feet yesterday continued to the Pool  
which is located at the ~~southwest~~ base of  
Vermilion Cliffs with 2 corrals & a house  
the latter belonging to the Grand Canyon Cattle  
Co. which has a fence across House  
Rock Valley running east from a point  
of Vermilion Cliffs ~~up~~ across the valley  
(to expect to put it across to head  
of Snake Gulch which would  
thus shut in everything south as  
the cliffs & canyons do the rest.  
The Co. now is to run a fence along  
top of Buckskin Mts (N & S) the Govt  
furnishing wire, in order to keep



their cattle from mixing with those  
of the people of this section whose stock  
runs to the west.

~~About~~ Coyote Spr.

Aug 30, left Jacobs Pool  
in the morning & reached  
House Rock Sp. at noon ~~12~~ miles  
Alt. of valley near spring about 5500 ft.  
From here we traveled about 8 miles  
to the divide of House Rock Valley which  
is about 5800 ft. The Vermilion  
~~The desert~~ Cliffs & Buckskin mts  
approach narrowing the valley to  
about 2 miles wide at the spring  
& still narrower farther up when  
points of the two mts. come within  
half a mile or so. Beyond the  
divide ~~of the~~ above H.R. Spr. we  
descended a similar narrow  
valley for about 7 miles to a flat near

Coyote Spr. where the wagon road  
crosses the northern end of the  
Buckskins. Our camp here was  
about 5300 ft.

Vermilion Cliffs are red sandstone &  
the Buckskin mts facing them are lime-  
stone. From Jacobs Pools to near House  
Rock Sp. we were on the red sandy soil  
& the same vegetation continued that  
we had at the Pools. ~~At about~~ Our  
road led up to high ground at the pool  
& thence down to lower ground in  
bottom of valley up to H.R. Spr. At about  
5200 feet were ~~scattered~~ cedars  
& at 5300 ft. Cedars were spreading  
across the valley. With the cedars  
came in an abundance of *Artemisia*  
*tridentata* which was all over valley  
thence to divide down to our camp  
with Cedars. With the sage & Cedars



A broad leaved yucca with long fruit pods abundant from divide to Camp.

an abundance of ~~some~~ small *Euternozia* & a plant much like it with larger petals; also some *G. euthanae* the same *Lycium* seen at Gallup also common. A few bunches of *Artemisia* in fens at about 5100 ft. & became common on top of divide with it at latter place were some white thorned *Opuntia polyacantha* & an *Opuntia* (pear-leaved) with dark red fruit) and another small cylindrical species not collected.

The white Sage was very abundant with grama grass in great plenty from top of divide to our camp in an open rounded valley. In addition ~~The desert plants of the sandy~~ numerous 'Old man' shrubs were seen along valley from the Pool to the divide. Near H.R. Spr. the road

passed from sandy soil of Herm. Cliffs to the more rocky limestone soil on west of valley, ~~the~~ This occurred at about 5200 ft. & the great majority of the species dropped out at once & were replaced by those mentioned going with the cedar belt. The Cedar belt on E.

side Buckskin mts, begins with scattered trees at a little over 5100 ft in valley, & becomes a well marked belt at about 5500 ft. On the north slope, beyond divide they are more numerous & go well below our camp at 5300 ft (probably below 5000 ft. at least).

A few *Amorpha*, *Leuc. cernua* were seen along road to Summit, one was up in a Cedar tree. 1 Coyote & the



The white sage is a valley species  
does not range into the Pinyon  
belt but is upper Sonoran being  
in lower part of Artemisia tridentata belt.

Hills of numerous Thomomys in  
the sand; also Perodipus holes.  
All before we reached the  
divide. After that no mammals  
seen. 1 Sturnella on summit  
Cliff Swallows & Arremones  
abundant n. of divide, not  
seen south. Amphisp. nevadensis  
rather common in sage brush &  
cedars both sides divide.  
Sialia bairdi, a few. Frathers of a  
Cyanocitta diademata seen on  
ground by road on divide.

Aug. 31 Traveled 30 mi. to  
Kanab, Utah, Alt. 5000 ft.  
Rained hard much of last night  
& well into morning. We broke  
camp late & at once climbed up  
a steep, very rocky limestone  
slope of the northern end of

Buckskin Mts. The top of these  
the ridge we crossed is a little  
over 6500 ft. The summit is a  
broad rolling plain about  
10 mi. across cut by canyons  
here & there. From last night's  
camp over entire ridge is a <sup>strong</sup>  
growth of Cedar & Pinyons with an  
abundance of the small leaved Cerco-  
carpus growing to 8 to 12 ft. high.  
An abundance of Yucca baccata  
Artem. tridentata. & the red fruit  
Opuntia & O. polyacantha &  
the bush Opuntia. The Gutierrezia  
entire & the ~~the~~ small, white  
stemmed Gutierrezia also a  
similar plant studied from  
Honey Rock Valley across into  
across Mt. & through to Kanab.  
On top of Mt. the highest point



is about 6500 ft. Along the summit  
we saw a considerable number  
of the dark green sp. of sage like  
on Dry Mt. With these were  
also many bushes of *Yucca gambelii*.  
From west base of mt. we traveled  
west to Kanab through several  
small valleys with low ridges between.  
The valleys were open sage brush plain  
with the intervening ridges & sides covered  
with pinyon & cedar.

In Johnson Cr. Valley we struck a  
large shrub 3-5 ft high with an  
offensive odor. It displaced the  
sage (*tridentata*) & is accompanied  
by a gray shrub somewhat like the  
Old Man shrub.

*Atriplex canescens* <sup>commonly</sup> occurs in  
scattered individuals all along  
today's route, most below cedar.

Sept. Transfer to

*Lycium*, White Sage, Cedar  
& large *Cercocarpus* came  
in in an open draw at 5500 ft.  
surrounded by ~~open~~ open sage brush  
rolling plain. Broad leaved yucca  
Sage brush, *Ephedra* & the 2 small  
yellow flowered composites.

The *Ephedra* at last night's camp  
& below was the bluish stemmed  
sp. while at about 5200 ft the  
larger dark green sp. came in.  
The bluish one was again seen  
near Ryan.

We had a risky trip through  
thin, mud & swollen torrents in  
canyon wash, sep. in 3 m. wash &  
reached Kanab at 9:15 PM. Several  
the travelers were stopping here  
held up by the storm.



Sept. 1 + 2 Kanab.

We remained here working on reports, accounts, drying outfit & preparing to leave tomorrow. On night of Aug.

~~Sept. 3 left~~

31 Mr. Kanab dam went out & much damage was done all along Kanab Creek.

Sept. 3 The mail came in <sup>at noon</sup> completely saturated with water as a result of the storm.

We left Kanab after dinner & drove through Fredonia 6 miles south & thence on to some tanks in the heat of a canyon about 6 m. SE. of Fredonia.

The broad clayey flat plain about Fredonia is a little

under 5000 ft. alt & was covered almost entirely by ~~Artemisia~~ *Artemisia* *confertifolia* which gave way to sage (Art. trid.) & calling *Atriplex canescens* *Gutier. euthamiae*, *Opuntia arborescens* *Artemisia tridentata* comes down to 5000 ft. in Kanab valley. Cedar & pinyons are on a low ridge bet. Kanab & Fredonia but thence to Cedar Knoll 16 m. SE of Fredonia are open sage brush rolling plains sloping up toward base of Buckskin mts.

At our camp by the tanks *Artem. tridentata*, a few *Atriplex canescens* arborescent *Opuntia* and *Gutierrezia euthamiae* & the *Gutierrezia*-like plants found abundantly in House Rock valley.



alt of Ryan 5800 ft

Sept 4 From Camp at  
Tanks ~~to~~ Big Spring in Nail  
Canyon .25 m. S.E. alt. 6400 ft  
At about 5500 ft we came  
to scattering Cedars & the cedar  
belt began at 5800 ft. with a few  
pinyons ~~scattered~~ ~~with the cedars~~  
~~below 5800 ft.~~ (see note on p  
3d page, preceding this)

About <sup>10</sup> miles from East night's camp  
we came to the deserted mining camp  
of Ryan with its abandoned smelter  
empty houses. The Forest Service  
has a house here.

Before reaching Ryan we found  
Beavers very common ~~for~~  
and just before reaching it  
Quercus Gambelii appeared on  
N. or N.W. slopes  
Rhus trilobata seen below Ryan

Rye, Oats & potatoes growing  
well at Big Spring

A little below Ryan the Serviceberry  
bush became common &  
was noted for some miles above.  
At about 5700 ft the thorny locust-  
like bush came into ranges up  
to above 7000 ft

From Ryan up to Big Spring several  
new bushes came in. The northern  
slopes of the hills were heavily cov-  
ered with gambel oak

Big Spring is a fine gushing stream  
coming out of side of canyon 100 ft above  
bottom & quickly disappears in the loose  
mucky soil.

The forest service has a ~~good~~  
small house at Big Spr. where  
we camped. Ranger Pratt &  
family live there.

Cottontails & Jack Rabbits on  
sage brush plain from



Last night's camp up into  
cedar belt. Also Amorpha  
aphylla leucocarpa —.

Sept. 5 Dermott Park, 26 mi.  
S. of Big Spring Alt. 8800 ft.  
Traveled up Big Spr. Canyon  
for 15 mi. to Dry Park and through  
it then across a divide about  
9200 ft high & down into Dermott  
Park to Forest Service house where  
we met Inspector McCane, Supervisor  
Clark & 2 rangers. We camped  
here for a couple of days.  
At 6400 ft in Nail Canyon  
*Pinus ponderosa* was abundant  
on both sides with *Quercus*  
*Gambelii* & *Rhus trilobata*  
was common up to near 7000 ft.  
Quaking aspens came in

in bottom of Canyon at 7000 ft  
were abundant thence  
to top of mt. On south slopes the  
yellow pine goes up to 9000 ft  
& Pinyon up to 8000.

~~There are~~ The top of the mt.  
from about 8500 ft to summit  
at over 9000 is mainly aspen  
& 3 sp. of firs & the balsam.

This makes a distinct fir zone  
the best defined of any on the mt.  
With the firs in this zone is the  
black jack pine (~~*Pinus*~~ *resinosa*).

From 7300 ft up we saw ~~of~~ <sup>the</sup> *Thomomys*  
digging & at 7600 ft in a cold  
spruce grown canyon was what  
the first ~~Sand~~ Pine sq.

*Callosperm.* & *Chipmunk* began  
to be noted at about 6300 ft  
& range to summit.



A Ranunculus & a  
small Gentian seen at  
De Motte Park

~~Sept 6-7 Remained at  
Fort Custer Cabin in De Motte Park~~

8800ft firs in the spruce woods  
at 8500ft in draw sloping east  
The firs all dropped out on <sup>the</sup> south  
slope exposure leaving yellow pines  
& aspens. On N. exp. 3 sp. firs,  
black jack pine & aspens



Sept 6 Remained at  
Dorn Service Cabin in Dornette  
Park collecting in vicinity  
Junco dorsalis is gathering in  
flocks though still moulting &  
some yg. just getting ad. plumage.  
2 Parus seen. 1 Brown Creeper  
1 ~~Hylocichla~~ Hylocichla, 1 Vireo Cassini  
2 pairs Accipiter visus, 1 ~~Dr.~~ Falco  
phalaena. A few warblers migrating.  
Red Squirrels abundant. Chattering  
call in moving with a little chuck-  
chuck - as the only other note.  
They are not very demonstrative  
but show little fear. They have nests  
up spruce trees under which the  
ground is covered for several  
feet about base of trunk with  
a heaped up mass of scales &  
stems of ~~the~~ fir cones mainly

of the scalybarked species  
apparently though I saw one pile  
at least made of the rough barked  
hemlock mass of the cones of  
this species. Many of these piles  
contain several bushels of cone  
scales showing that the same  
tree & nest is occupied a long time.  
The morning was lively & the squirrels  
were busy feeding or moving about.  
In P.M. sun came out and about  
3 P.M. I could find but little  
movement among these squirrels  
but in two cases I found the nest  
about 1/3 of the way up in a small  
corner & by close looking found  
the owner sitting motionless on a  
limb a few feet away or though  
ignoring the warmth of the sun.  
Callospermophilus rather common



along the borders of the forest  
at edges of park - a small  
*Eutamias* was common  
then & also dist. through the  
forest.

The forest is made up of the Balsam  
(or Corkbarked?) fir; ~~the~~ <sup>the</sup> bark smooth & <sup>the</sup>  
the heavily ridged

A hemlock with awns in cone  
& heavily ridged bark

A Spruce with thin bark covered  
with thin scales & no trace of  
ridging on bark - cone very small  
& slender.

Another Spruce with longer  
cone and with bark somewhat  
like the scaly bark but with  
small numerous small  
cracks forming <sup>small</sup> up & down ridges.

The Black Jack Pine in

smaller numbers than firs & spruces  
also the quaking aspen growing  
to large trees among the spruces  
and the dwarfed *Juniperus communis*  
which is scattered through the  
forest often growing at the base of  
a large spruce or fir. No other  
trees noted about this park.

The forest ranger here Scott  
Brown says that Owens the  
panther hunter has killed 82  
~~in~~ in a little over a year. But  
~~that~~ they are still numerous.  
There are Coyotes & but no gray  
wolves at present. The last black  
one was seen about a year  
or so. A few porcupines in the  
conifer zone.

*Canis kaibabensis* occasionally  
seen up to top of mt. but usually



in yellow pine zone. *Sylvilagus*  
*gambelii* reported by one of the  
rangers who has lived on the  
mt. many years. He says they are  
scarce & difficult to find except  
after a fresh snowfall. They can  
then be tracked to their shelter  
which is a hollow log or other  
hole. Positively no Snowshoe  
Rabbits nor White-tail Jacks on  
this mountain. The rangers  
commented on there being no  
snowshoe rabbits here though  
common in mts. a little farther north.  
*Callospermophilus* & 2 sp. of *Eutamias*  
common about an old coral  
grown up to a small wood with  
small black seeds. The *Eutamias*  
of both species were very abundant  
there & also many juncos & a few

The yg. of *Regulus calendula* just molting  
into its first plumage shot

*Spizella breweri*, ~~Heug.~~

Sept. 7 Remained at Dr Motte  
Park Collecting. I caught a  
*Microtus* (*Chilotus*?) under a log  
last night & Birdseye a Coyote  
in Pleasant Valley just north.  
He also saw a Turkey buzzard &  
caught a coon in trap which  
was eaten by a Coyote.

The yg. of *Regulus calendula* shot today  
just molting into its full plumage showing  
that they must be red here. Others seen  
Yg. of *Spiz. breweri* in the yg. spotted  
breasted plumage shot. Some juncos are  
still in partly immature plumage.  
The *Pinus fuscus* shot yesterday  
had remains of a small *Eutamias*  
in its crop. The forest ranger  
has reports that Coyotes are



abundant recently in Pleasant  
Park 3-4 m. north of here where  
they are feeding on a kind of large  
cricket which was very abundant.  
The recent cold storm probably caused  
them to disappear as they are now gone.

Blue grouse are said not to  
occur in the high spruce  
ridges but to frequent the breaks  
of the Grand Canyon. Both the  
Forest Ranger Brown & our man  
Dwett agree in this. Brown  
says he has often opened the  
crops of these grouse & found them  
full of the needles of the yellow pine  
or the Bull Pine or Black Jack  
which grows with the yellow pine.  
He says they often eat aspen  
buds.

Sept. 8 Left DeMotte Park  
through the South end & traveled  
16 miles to Bright Angel Spring  
alt 8000 ft.) just west of the head  
of Bright Angel Creek.

In the road saw Sialia bairdi, Buteo  
calurus, Falco phalaena, Oreoscoptes montanus  
(in the Park), Otocoris, Spiz breweri,  
coacta, Merula propinqua, Corvus,  
yanocitta, Colaptes cafer (2).

DeMotte Park is about 8 m. long N & S.  
& averages about 1/4 mile to 1/2 m wide  
& bordered by spruce & aspen grown  
ridges on both sides. After leaving the  
Park where 3 coyotes were seen, the road  
wound down a narrow draw through  
a dense spruce <sup>& fir</sup> forest to a narrow  
open draw with spruce, fir, black  
jack pine & aspens on the slope facing  
the E. & yellow pines, spruce, fir &



aspens on slope facing west.  
At 8800 ft on S. slopes the common  
"brake" fern came in commonly.  
At 8500 ft. Considerable numbers  
of yellow pines came in on ~~south~~  
slopes ~~was~~ on upper half at  
least of the hills. In some places  
the yellow pines were predominant but  
usually well mixed with spruce, fir,  
and aspens.

We passed upper & lower Thompson  
springs & then came to a fenced  
pasture & Forest Ranger's cabin  
just above Bright Angel Spring which  
is ~~our~~ our camping place.

Just back of our tent on the N. ~~the~~  
ga hill is dense fir, spruce & aspen  
forest while on the opposite side  
of the small meadow is a low  
slope facing south on which yellow

pine is predominant with <sup>numerous</sup> ~~some~~  
aspens. The altitude here is 8000.

Sept 9 - Bright Angel Sp.  
Remained at this camp collecting  
Microtus, Peromyscus, ~~2 sp~~ <sup>large</sup>  
Tritomus, Callospermoph. &  
Sciurus mog. On hill + fir  
grown hill back of tent  
Numerous gophers in flat  
a few Sciurus kaibabensis  
among yellow pines here.

Neotoma signs in ledges, also one  
porcupine den located by Bing.

Sept. 10 Bright Angel Sp.  
Remained at this camp collecting  
Bushy tailed woodrat caught in  
rocks near spring. Flocks  
of Cyanocephalus flying over. Troglodytes  
parkmanni 1 shot last m., also  
Hylodichla (49) & Coturnix richardsoni 44



+ yg. Sharpshin + Sparrowhawk

Sept 10. Remained at Bright Angel Sp. Camp.

During the day, I went about 2 miles south easterly to Bright Angel Point overlooking the Grand Canyon + directly across from the Santa Fe R.R. Hotel on S. side of Canyon. The view was superb as the Point is at the end of a long narrow ridge with branches of Bright Angel <sup>Canyon</sup> Creek on both sides several thousand ft. deep + the Canyon to the Colorado in front. The alt. 8000 ft. was enough to give a fine view over the great plateau on south side which appears to be a broad slightly undulating world

plain as far as I could see with San Francisco + a few other mts. rising from it. It was extremely interesting to find Cedars, pinyons, manzanita, 2 sp (small leaf + long narrow leaf) of Cercocarpus + other upper Sonoran plants occupying the slopes facing south clear to the very rim of Canyon at 8000 ft. while on opposite or north slopes down for a long distance from rim were vigorous growths of Pseudotsuga + Cedric arizonica.

On the flat tops of the mesa immediately back of the rim is Transition forest of yellow pine Gambel Oak wild locust with occasional trees of the flat leaved Cedar along the



time. It was a surprise to find no *Pinus ponderosa* growing below rim of canyon on N. or S. slope when I visited it but to find these slopes occupied by Cedar, Spruce on one side with <sup>a few</sup> scattered ~~Spruce~~ *Pseudotsuga* on S. slopes & with Spruce & fir exclusively on the other slope except for occasional Cedar spruces & patches or scattered Aspens.

The line of demarcation bet Upper Son.  
on S. exposure & the Transition on top  
of ~~sp. calc.~~ at rim of Canyon  
is extremely well defined some photos  
I took show this well.

From the canyon rim several birds  
not seen before on the mt were  
noted: several *Picicorvus*, and

2 Myadestes & 2 Golden Eagles  
the latter, coming 200 yds below.  
Regulus, Robin, 2 *Baeol. inornatus*  
*Sialia* & *Catherpes villosus* were  
seen on top as was 1 Dend. agrippa  
Observed which was shot. The  
crop contained leaves &c. &  
bits of some small herb &  
Crop & gizzard had no trace of pine  
needles. These birds live only  
along the border of canyon  
in accordance to forest  
rangers. They feed along the  
top of mesa & when alarmed  
fly to over dense slopes of canyon  
when numerous species fly  
about.



We wish to get about  
6 specimens of the White-  
tail Squirrels

And would like 1 good buck deer

Only these are for the  
Department Collection

Have you any objection  
to this. Of course I do not  
wish to take anything against  
your wishes.

I only care for a big one

How far

Are

How big, antlers

~~Owner~~ n

When do you expect

Owner back

He ought to be here then  
tomorrow or day after



# Distances & Elevations

		Miles	Elevation
July 25-29	Winslow - Mammulito	145	6200
" 30	Mammulito - Ft. Dr. France	35	6800
" 31	Ft. Dr. France - Sawmill	15	7800
Aug 2	Sawmill - Chin Lee	35	5600
" 4-5	Chin Lee - Canyon de Chelly mt.	14	5800
" 5	" - Camp on mesa	12	6300
" 6	Camp on mesa - Ganado	30	6400
" 7	Ganado - Camp on mesa	24	6500
" 8	Camp on mesa - Keams Canyon	26	6400
" 9	Remained at Keams	"	
" 10	Keams C. - Walpi	12	5900
" 11	Walpi - Oraibi	18	6000
" 12	Oraibi - Camp on mesa	18	6200
" 13	Camp on mesa to camp near Tuba	30	4300
" 14	Camp near Tuba - Tuba	5	4500
" 15	Ketchum returned to Winslow with his outfit (about 125 m.)		
" 21	Tuba - Cottonwood Junk	30	6000
" 22	Cottonwood Junk - Luis Ferry	45	3200
" 27	Luis Ferry - Soap Creek	15	4600
" 28	Soap Creek - Jacob Pool	15	5500
" 30	Jacob Pool - House Rock Spring	12	5500
" "	House R. Spr. - near Coyote Spr.	15	5300
" 31	near Coyote Spr. - Kanab	30	5000
Sept. 3	Kanab - Water Pocket ss. of Fredonia	12	
" 4	Water Pocket - Big Spring	25	6400
" 5	Big Spring - Dr. Motte Park	26	8800
" 8	Dr. Motte Park - Bright Angel	16	8000
	Total miles to Sept. 8	660	

Prairie dog

hto t. glaw hest yf jidung

Sciurus aberti

ghlō tēh kē

Sciurus arizonae

ghlō-zio-zheer-i

Peromyscus erigonae

ghlō-zio-zheer-i

Chomelochus

Bee-e-zheer



Has a small ...  
... north ...  
... in ...

East ...  
... from ...  
... mt is

Ha-zh-tah-tah-tah  
Perodipus

nah-hul-tay

~~... ..~~

~~...~~

Remains

nah-ah-tah-tah

Thompson

~~nah-ah-tah~~

Can ...

Has ...

Thompson

nah-ah-tah

Films Sent in

- no 1. Bonito Canyon above Defiance
- " 2 Mt. above Defiance (new)
- " 3 Canyon de Chelly & Road to Gauch

sent in 1910

Ranger Brown says there is  
a man in Kansas who  
knows the Mt. Ironbuck  
district well & has an outfit  
His name is Wm. Mace



